

1. A fire protection device comprising:
a front face;
a rear face spaced relative to said front face; and
a plurality of ribs coupling said front face to said rear face, wherein said ribs, front face and rear face are arranged to define a single chamber into which a fire extinguishing agent can be disposed, said ribs rigidly connected to said front face and defining an energy transfer path between said front and rear faces such that upon said front face sustaining damage from an initial absorption of energy, said coupling maximizes the transfer of said absorbed energy to said front face to enhance fracture damage thereto, thereby liberating as much of said agent from said chamber as possible.
2. The device of claim 1, wherein said ribs are integrally formed with said rear face.
3. The device of claim 1, wherein said ribs are adhesively bonded to said front face.
4. The device of claim 1, wherein said front face is prestressed, thereby further enhancing fracture damage thereto upon exposure to said absorbed energy.
5. The device of claim 1, wherein said front face is made from a more brittle material than said rear face.
6. The device of claim 1, wherein said rear face is configured to be substantially as brittle as said front face.
7. The device of claim 1, wherein said rear face is made up of a material configured to maximize feedback of said absorbed energy through said plurality of ribs and said front face.
8. The device of claim 1, wherein at least said rear face is made from a material that imparts self-sealing features to said device.

9. The device of claim 8, wherein said material is an elastomer or ionomer.
10. The device of claim 1, further comprising a layer of self-sealing material disposed adjacent said rear face.
11. The device of claim 10, wherein said material is an elastomer, ionomer or intumescent.
12. The device of claim 1, wherein said chamber is pressurized relative to the ambient environment.
13. The device of claim 1, further comprising at least one mounting device disposed thereon to secure said device adjacent a flammable material container.
14. The device of claim 1, wherein said ribs are defined by size, inter-rib spacing and shape such that said size, shape and inter-rib spacing are arranged to promote said enhanced fracture damage to said front face.
15. The device of claim 14, wherein said coupling of said ribs to said front and rear faces is of sufficient strength to ensure said front face fractures prior to said connection between said ribs and said front face.
16. The device of claim 1, further comprising at least one line of weakness in said front face.
17. A fire protection device comprising:
 - a front face made of a first material;
 - a rear face spaced relative to said front face, said rear face made of a second material that is more resistant to fracture than said first material; and
 - a plurality of ribs integrally formed with said rear face and coupled to said front face, wherein said ribs, front face and rear face are arranged to define a single chamber

into which a fire extinguishing agent can be disposed, said ribs rigidly connected to said front face and defining an energy transfer path between said front and rear faces such that upon said front face sustaining damage from an initial absorption of energy, said coupling maximizes the transfer of said absorbed energy to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

18. A fire protection device comprising:

a front face;

a rear face spaced relative to said front face; and

a plurality of ribs rigidly coupling said front face to said rear face to define an energy transfer path therebetween, wherein said ribs, front face and rear face are arranged to define a single chamber into which a fire extinguishing agent is disposed such that upon sustaining projectile damage to either said face, said coupling maximizes the transfer of energy absorbed as a result of said projectile to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

19. A fire protection device for a flammable material disposed in a container, said device comprising:

a front face;

a rear face spaced relative to said front face such that a fire extinguishing agent can be placed therebetween;

a sealing layer disposed between said rear face and said container; and

a plurality of ribs coupling said front face to said rear face, wherein said ribs, front face and rear face are arranged to define a single chamber into which said agent is disposed, said ribs defining an energy transfer path between said front and rear faces where said front face and said ribs are rigidly connected to one another such that upon sustaining damage to said front face from an initial absorption of energy, said coupling maximizes the transfer of said absorbed energy to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

20. The fire protection device of claim 19, wherein said sealing layer is made of an elastomeric, ionomeric or intumescent compound responsive to a rupture forming in said container adjacent said sealing layer such that the amount of leakage of said material from said container is reduced.

21. The fire protection device of claim 20, wherein said rear face, sealing layer and container are in contact with one another.

22. A fuel system comprising:
a fuel container; and
a fire protection device coupled to said fuel container, said fire protection device comprising:

- a front face;
- a rear face spaced relative to said front face, said rear face disposed adjacent said fuel container;
- a plurality of ribs coupling said front face to said rear face such that said ribs, front face and rear face are arranged to define a single chamber, said ribs rigidly connected to said front face and defining an energy transfer path between said front and rear faces; and
- a fire extinguishing agent disposed in said chamber, said fire protection device configured such that upon rupture of said fuel container, said coupling between said ribs and said front and rear faces maximizes the transfer of energy imparted from said fuel container to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

23. The fuel system of claim 22, wherein said chamber is pressurized relative to the ambient environment.

24. The fuel system of claim 23, wherein said fire extinguishing agent is a gas.

25. The fuel system of claim 22, wherein said fuel extinguishing agent is a powder.
26. The fuel system of claim 22, wherein said fuel extinguishing agent is a liquid.
27. The fuel system of claim 22, wherein said fuel container is connected to said fuel protection device such that a hydrodynamic ram developed in said fuel container is transferred to said front face through said rear face and said ribs.
28. The fuel system of claim 22, wherein at least one of said rear face or ribs is made from a material that imparts self-sealing features to said fuel system.
29. The fuel system of claim 22, further comprising a sealing layer disposed between said rear face and said fuel container.
30. A flammable material storage system comprising:
a containment structure configured to house a flammable material therein; and
a fire protection device coupled to said containment structure, said fire protection device comprising:
a front face;
a rear face spaced relative to said front face, said rear face disposed adjacent said fuel container;
a plurality of ribs coupling said front face to said rear face such that said ribs, front face and rear face are arranged to define a single chamber, said ribs rigidly connected to said front face and defining an energy transfer path between said front and rear faces; and
a fire extinguishing agent disposed in said chamber, said fire protection device configured such that upon rupture of said fuel container, said coupling between said ribs and said front and rear faces maximizes the transfer of energy imparted from said fuel container to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

31. The flammable material storage system of claim 30, wherein said containment structure is a building.

32. A method of protecting a flammable material, said method comprising the steps of:

arranging a fire protection device to comprise:

a front face;

a rear face spaced relative to said front face; and

a plurality of ribs coupling said front face to said rear face, wherein said ribs, front face and rear face are arranged to define a single chamber into which a fire extinguishing agent can be disposed, said ribs rigidly connected to said front face and defining an energy transfer path between said front and rear faces; and

placing said fire protection device adjacent a container of said flammable material such that upon said front face sustaining damage from an initial absorption of energy, said coupling maximizes the transfer of said absorbed energy to said front face to enhance fracture damage thereto, thereby liberating as much of said agent as possible.

33. The method of claim 32, comprising the additional step of configuring said fire protection device to comprise a material that imparts self-sealing features to said device.

34. The method of claim 33, wherein said material that imparts self-sealing features to said device makes up at least one of said rear face or ribs.

35. The method of claim 33, wherein said material that imparts self-sealing features to said device comprises a sealing layer disposed between said rear face and said flammable material container.